Atty Dkt No. MAZN 0104 PUSA

S/N: 10/714,227

Reply to Office Action of July 2, 2004

<u>Amendments to the Claims:</u>

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. (CURRENTLY AMENDED) An engine variable valve timing system that varies an overlap period, during which intake and exhaust valves are both open, from large to small when an accelerator pedal is returned from a load state to an idling state, the system comprising:

a hydraulic variable intake phase mechanism and a hydraulic variable exhaust phase mechanism respectively provided on the ends of an intake camshaft and an exhaust camshaft that respectively vary the respective phases of the camshafts to a crankshaft, the variable phase mechanisms respectively having advancing hydraulic pressure chambers and retarding hydraulic pressure chambers;

an intake hydraulic pressure control valve and an exhaust hydraulic pressure control valve that respectively control the hydraulic pressure of hydraulic fluid supplied to the advancing hydraulic pressure chambers and the retarding hydraulic pressure chambers of the variable phase mechanisms;

an intake-side advancing hydraulic line and an intake-side retarding hydraulic line that respectively connect the intake hydraulic pressure control valve to the advancing hydraulic pressure chamber and the retarding hydraulic pressure chamber of the variable intake phase mechanism; and

an exhaust-side advancing hydraulic line and an exhaust-side retarding hydraulic line that respectively connect the exhaust hydraulic pressure control valve to the advancing hydraulic pressure chamber and the retarding hydraulic pressure chamber of the variable exhaust phase mechanism;

wherein portions of the intake-side advancing hydraulic line and the intake-side retarding hydraulic line respectively constitute annular grooves for advancing and retarding provided on the intake camshaft bearing surface of the cam cap which supports the <u>intake</u> camshaft, and portions of the exhaust-side advancing hydraulic line and the exhaust-side retarding hydraulic line respectively constitute annular grooves for advancing and retarding

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provided on the exhaust camshaft bearing surface of the cam cap which supports the <u>exhaust</u> camshaft;

wherein the annular groove for retarding on the intake camshaft bearing surface and the annular groove for advancing on the exhaust camshaft bearing surface are respectively provided in the center in the width direction of their respective bearing surfaces so that the hydraulic fluids in these annular grooves are respectively less susceptible from leaking out from these respective annular grooves;

wherein the annular groove for advancing on the intake camshaft bearing surface and the annular groove for retarding on the exhaust camshaft bearing surface of the cam cap are respectively provided near the edges of their respective bearing surfaces in the width direction so that the hydraulic fluids in these annular grooves are respectively more susceptible to leak out from these respective annular grooves;

whereby the phases of the camshafts are retarded promptly on the intake side and advanced promptly on the exhaust side so as to obtain a stable combustion when the accelerator pedal is returned from the load state to the idling state.

2. (CANCELLED)

- 3. (CURRENTLY AMENDED) An engine variable valve timing system according to claim [[2]] 1, wherein the annular groove for advancing on the intake side and the annular groove for retarding on the exhaust side are provided near the edges of their respective bearing surfaces in the width direction, on the side close to respective variable phase mechanisms.
- 4. (ORIGINAL) An engine variable valve timing system according to claim 1, wherein the variable exhaust phase mechanism is provided with a spring that presses the camshaft in the advancing direction with respect to a crankshaft-side rotating member.
- 5. (ORIGINAL) An engine variable valve timing system according to claim 1, wherein the exhaust hydraulic pressure control valve is attached to the cam cap toward the

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vertical direction, and the portion of the exhaust-side advancing hydraulic line that extends from the exhaust hydraulic pressure control valve to the annular groove is provided in a position above the portion that extends from the exhaust hydraulic pressure control valve to the annular groove.